

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-14 (Canceled).

Claim 15 (New): A catalyst for polymerizing  $\alpha$ -olefin, comprising a combination of:  
a component (A) that is a solid catalyst component comprising magnesium, titanium,  
and a halogen as an essential component;

a component (B) that is an organoaluminum compound;

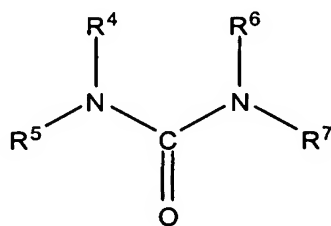
a component (C) that is a compound comprising a C(=O)N bond selected from the  
group consisting of tetramethylurea, tetraethylurea, bis(tetramethylene)urea, N,N'dimethyl-  
N,N'-diphenylurea, 1,3-dimethyl-2-imidazolidinone, 1,3-dimethyl-3,4,5,6-tetrahydro-2(1H)-  
pyrimidinone, N,N-dimethylpropionamide, 1,3-diacetyl-2-imidazolidinone, 1-methyl-2-  
pyrrolidinone, 1-ethyl-2-pyrrolidinone, 1-dodecyl-2-pyrrolidinone, 1-cyclohexyl-2-  
pyrrolidinone, 1-phenyl-2-pyrrolidinone, and N-methyl- $\epsilon$ -caprolactam; and

a component (D) that is a silicon compound or a compound having at least 2 ether  
bonds.

Claim 16 (New): A production method for an  $\alpha$ -olefin polymer, comprising  
homopolymerizing or copolymerizing an  $\alpha$ -olefin by contacting the  $\alpha$ -olefin under  
homopolymerizing or copolymerizing conditions with the catalyst of Claim 15.

Claim 17 (New): A catalyst for polymerizing  $\alpha$ -olefin, comprising a combination of:  
a component (A) that is a solid catalyst component comprising magnesium, titanium,  
and a halogen as an essential component;

a component (B) that is an organoaluminum compound; a component (C) that is a compound comprising a C(=O)N bond having the following formula (2):



(2)

wherein R<sup>4</sup> to R<sup>7</sup> each represent an aliphatic hydrocarbon group having 1-20 carbon atoms, an alicyclic hydrocarbon group having 1-20 carbon atoms, an aromatic hydrocarbon group having 6-20 carbon atoms, or a heteroatom-containing hydrocarbon group, wherein any two of R<sup>4</sup> to R<sup>7</sup> are combined to form a ring structure; and

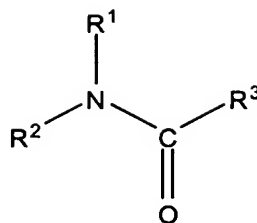
a component (D) that is a silicon compound, or a compound having at least ether bonds.

Claim 18 (New): A production method for an  $\alpha$ -olefin polymer, comprising homopolymerizing or copolymerizing an  $\alpha$ -olefin by contacting the  $\alpha$ -olefin under homopolymerizing or copolymerizing conditions with the catalyst of Claim 17.

Claim 19 (New): A catalyst for polymerizing  $\alpha$ -olefin, comprising a combination of:  
a component (A) that is a solid catalyst component comprising magnesium, titanium, and a halogen as an essential component;

a component (B) that is an organoaluminum compound;

a component (C) that is a compound comprising a C(=O)N bond having formula (1):



(1)

wherein R<sup>1</sup> to R<sup>3</sup> each represent an aliphatic hydrocarbon group having 1 to 20 carbon atoms, an alicyclic hydrocarbon group having 1 to 20 carbon atoms, an aromatic hydrocarbon group having 6 to 20 carbon atoms, or a hetero atom-containing hydrocarbon group, wherein any two of R<sup>1</sup> to R<sup>3</sup> are combined to form a ring structure; and

a component (D) that is a silicon compound, or a compound having at least two ether bonds.

Claim 20 (New): A production method for an  $\alpha$ -olefin polymer, comprising  
homopolymerizing or copolymerizing an  $\alpha$ -olefin by contacting the  $\alpha$ -olefin under  
homopolymerizing or copolymerizing conditions with the catalyst of Claim 19.